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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/197,096	11/20/1998	MARK ALISTAIR POLETTI	0805774-0001	9905

7590 05/19/2005
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EXAMINER

LAO, LUN S

ART UNIT PAPER NUMBER

2643

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/197,096

Applicant(s)

POLETTI, MARK ALISTAIR

Examiner

Lun-See Lao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Introduction

1. This action responds to amendment filed on 11-24-2004. Claims 1-20 are cancelled and 21,22,26-29, 33, 34, and 36-41 have been amended and claims 21-41 are pending.

Specification

2. The amendment filed 11-24-2004 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "digital electronic filters for splitting an input signal into two or more separate frequency bands each having a different center frequency, said filters comprising a substantially equi-phase response whereby any phase shift to substantially any frequency passed in more than one of said frequency bands is substantially the same; two or more non-linear circuits, each of which distorts one of the frequency bands; and a summing network for recombining said frequency bands".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The driven " electronic filters for splitting an input signal into two or more separate frequency bands each having a different center frequency, said filters comprising a substantially equi-phase response whereby any phase shift to substantially any frequency passed in more than one of said frequency bands is substantially the same; two or more non-linear circuits, each of which distorts one of the frequency bands; and a summing network for recombining said frequency bands" (see specification page 10 and 14 and fig.8) were not supported in the further detail in the specification nor in any of the claim.

Claim 33 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The driven " digital electronic filters for splitting an input signal into two or more separate frequency bands each having a different center frequency, said filters comprising a substantially equi-phase response whereby any phase shift to substantially any frequency passed in more than one of said frequency bands is substantially the same; two or more non-linear digital circuits, each of which distorts one of the frequency bands; and a digital summing network for recombining said frequency

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bands" (see specification page 10 and 14 and fig.8) were not supported in the further detail in the specification nor in any of the claim.

Regarding claims 21 and 33, the phrase such as "each having a different center frequency, said filters comprising a substantially equi-phase response whereby any phase shift to substantially any frequency passed in more than one of said frequency bands is substantially the same" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21, 24-25, 30-33, and 40, are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US PAT. 4,589,135) in view of Moskowitz (US PAT. 4,069,732).

Consider claim 21, Baker teaches a preamplifier, comprising:

electronic filters (see fig.1,10) for splitting an input signal into two or more separate frequency bands (such as high pass bank and low pass bank) each having a different center frequency, said filters comprising a substantially equi-phase (zero phase shift) response whereby any phase shift to substantially any frequency passed in more than one of said frequency bands is substantially the same (see col. 6 line 57-col.7 line 36);

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but Baker does not teach that the two or more non-linear circuits, each of which distorts one of the frequency bands; and a summing network for recombining said frequency bands.

However, Moskowitz teaches that the two or more non-linear circuits (see fig.6), each of which distorts one of the frequency bands; and a summing network (88,89) for recombining said frequency bands(see col.6 line 48-col.7 line 46).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Moskowitz into Baker to provide the musician more precise control over the sound produced by the instrument.

Consider claim 24-25, Baker teaches that a preamplifier system of each low and high pass filter pair is a state variable filter (see col.4 lines 15-35).

Consider 30-32, Moskowitz teaches that a guitar preamplifier system of the non-linear circuit (see fig.6, 59) for each frequency band has a different gain than those in the other frequency bands; and non-linear circuits (see fig.6, 59) for higher frequency bands have a higher minimum gain than the non-linear circuits for lower frequency bands; and the distortion by said non-linear circuits is variable (see fig.6, 59 and see col.6 line 48-col.7 line 46).

Consider claim 33 Baker teaches a digital preamplifier comprising:

Digital electronic filters (see fig.1,10 and abstract) for splitting an input signal into two or more separate frequency bands (such as high pass bank and low pass bank) each having a different center frequency, said filters comprising a substantially equi-phase (zero phase shift) response whereby any phase shift to substantially any

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frequency passed in more than one of said frequency bands is substantially the same (see col. 6 line 57-col.7 line 36); but Baker does not teach that the two or more non-linear digital circuits, each of which distorts one of the frequency bands; and a digital summing network for recombining said frequency bands.

However, Moskowitz teaches that the two or more non-linear digital circuits (see fig.6), each of which distorts one of the frequency bands; and a digital summing network (88,89) for recombining said frequency bands(see col.6 line 48-col.7 line 46).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Moskowitz into Baker to provide the musician more precise control over the sound produced by the instrument.

Consider claim 40, Baker teaches that a preamplifier comprising:

- a electronic filters (see fig.1,10) including a first filter network, the network including:
 - an input (12),

- a plurality of outputs (14,16), and

- a plurality of band splitter filters(10) to split a signal on the input into a plurality of different(such as low pass bank and high pass bank) substantially equi-phase (such as zero phase shift) frequency bands in which frequency bands of substantially any frequency passed by more than one of said band splitter filters are substantially in phase in all of said bands (col.6 line 57-col.7 line 36); but Baker does not clearly teach a plurality of non-linear circuits coupled to a plurality of the outputs to distort respective output frequency bands.

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However, Moskowitz teaches a plurality of non-linear circuits (see fig 6 (59)) coupled to a plurality of the outputs to distort respective output frequency bands (see col.7 lines 3-46).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Moskowitz into Baker to provide the musician more precise control over the sound produced by the instrument.

6. Claims 22-23, 29,34-35, 39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US PAT 4,589,135) as modified by Moskowitz (US PAT. 4,069,732) as applied to claims 21,33, and further in view of Orban (US PAT .4,412,100).

Consider claims 22,34, Baker and Moskowitz differs from claims 22,34 in not disclosing that a preamplifier of filters comprises a cascade of $2^N - 1$ pairs of even-poled low and high pass filters arranged such that each pair splits the incoming frequency band in two, where N is the number of stages of pairs in the cascade, and wherein for the nth stage subsequent to the first, each low or high pass filter pair is preceded by $(2^{n-1} - 1)$ all pass filters with phase response corresponding to the $(2^{n-1} - 1)$ other low and high pass filter phase response in that stage such that the phase response of each stage is similar for each frequency band.

However, Orban teaches that a preamplifier of filters comprises a cascade of $2^N - 1$ pairs of even-poled low and high pass filters (see fig.3, (12,14 and 50,51)) arranged such that each pair splits the incoming frequency band in two (16,11 and 45,47, and

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52,58 and 53,54), where N is the number of stages of pairs in the cascade, and wherein for the n th stage subsequent to the first, each low or high pass filter pair is preceded by $(2^{n-1} - 1)$ all pass filters (12,47 and 50,54) with phase response corresponding to the $(2^{n-1} - 1)$ other low and high pass filter phase response in that stage such that the phase response of each stage is similar for each frequency band (see col.3 line 19-col.4 line 23).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Baker and Moskowitz into the teaching of Orban, so that the system provide the signal processor can generally be described as a distributed crossover system for use with bandpass filters containing internal clippers. A unique (series/parallel) crossover configuration with favorable summation of properties is used.

Consider claim 23, Orban teaches that a musical instrument preamplifier system of cascade has two stages of two pole low (see fig.3, (14,16,11,53,56) and high (51, 52,58,45,35) pass filter pairs.

Consider claims 29,39, Orban teaches that a preamplifier system of the filters (see fig.3, (14,16,11,17,25)) are combined with said summing network (19,25) such that it successive stages the lowest frequency band is low pass filtered with a low pass filter and the other frequency bands are all pass filtered (12,47,50,54) with an all pass filter corresponding to said low pass filter, said lowest frequency band is then combined with the next lowest frequency band, and comprising subsequent stages of repeated filtering and combining until all frequency bands are combined, such that the phase response

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over all frequency bands through the low pass filtering and summing (19,25,31) network is identical.

Consider claim 35, Baker teaches that a digital preamplifier each digital low pass and high pass filter (see fig.1 and col.5 lines 65) is obtained by a bilinear transformation of a corresponding low pass and high pass analogue filter (see fig.1), and the all pass filters are obtained by a bilinear transformation of a corresponding all pass analogue filter (see abstract and col.10 1-65).

7. Claim 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US PAT. 4,589,135) as modified by Moskowitz (US PAT. 4,069,732) as applied to claims 21,33, and further in view of Maag (US PAT. 5,892,833).

Consider claim 36, Baker and Moskowitz fail to teaches that a digital musical instrument preamplifier of the digital filters comprise linear phase finite impulse response filters (see col.7 lines 50-67).

However, Maag teaches that a digital musical instrument preamplifier of the digital filters comprise linear phase finite impulse response filters (see col.7 lines 50-67).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Baker and Moskowitz into the teaching of Maag to provide a new and improved digital equalizer system and method for processing and performing equalization on audio signals.

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8. Claims 26-27,37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US PAT. 4,589,135) as modified by Moskowitz (US PAT. 4,069,732) as applied to claims 21,33, and further in view of Koichiro (JP404142598A)

Regarding claims 26-27,37 Baker and Moskowitz differ from claims 26-27,37 in not disclosing that musical instrument preamplifier system of the filters further comprise variable cross-mixing after one or more stages of said filters.

However, Koichiro teaches that musical instrument preamplifier system of the filtering means further comprises variable cross-mixing after one or more stages of said digital filters (see fig.2).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Baker and Moskowitz into the teaching of Koichiro, so that the system provide pseudostereo phonic sound.

9. Claims 28 and 38, are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US PAT. 4,589,135) as modified by Moskowitz (US PAT. 4,069,732), and Koichiro (JP 404142598) as applied to claims 26 and 37, and further in view of Kuroki (US PAT. 5,841,875).

Consider claims 28 and 38 Baker and Moskowitz, Koichiro differ from claims 28 and 38 in not disclosing that a guitar preamplifier of low pass filters after said non-linear circuits to reduce high frequency distortion products.

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However, Kuroki teaches a preamplifier of low pass filtering means (see fig.29, 71) after said non-linear circuits (72) to reduce high frequency distortion products (see col.8 line 62-col.9 line 9).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Baker and Moskowitz and Koichiro into the teaching of Kuroki, so that the system provide a digital harmonics modifier being capable of generating a variety of tones containing variable harmonic components and featuring high durability and reliability.

10. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker(US PAT. 4,589,135) as modified by Moskowitz (US PAT. 4,069,732), and further in view of Orban (US PAT. 4,412,100).

Consider claim 41, Baker teaches a preamplifier system comprising:

electronic filters (see fig.10) for splitting an input signal into plurality of different (such as 14, high pass bank and 16 low pass bank) substantially equi-phase (zero phase shift) frequency band outputs in which frequency bands of substantially any frequency passed by a plurality of band splitter filters are substantially in phase in all of said bands (see col.6 line 57-col.7 line 36), but Baker fails to teach a plurality of non-linear circuits coupled to said filters to distort respective output frequency bands.

However, Moskowitz teaches a plurality of non-linear circuits (see fig 6, 59) coupled to filter means to distort respective output frequency bands (see col.6 line 48-col.7 line 46).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Moskowitz into Baker to provide the musician more precise control over the sound produced by the instrument.

On the other hand, Baker teaches one or more of the subsequent networks (see fig.1 (10)), the input of each is coupled to one output of another network via a filter to provide substantially equi-phase frequency bands (zero phase shift) on the network's outputs; with the center frequencies having substantially no phase shift when measured at the output of each band for the output (see col.6 line 48-col.7 line36), but Baker does not clearly teach the filters include a cascade of a first filter network, and one or more subsequent filter networks, each network including: an input, a plurality of outputs, and a plurality of band splitter filters to split a signal on the input into a plurality of different frequency bands for the outputs, and wherein outputs of some of the networks form frequency band outputs of the filters.

However, Orban teaches that that the filters include a cascade of a first filter network, and one or more subsequent filter networks, each network including:

an input (see fig.3, in), a plurality of outputs (10), and a plurality of band splitter filters (14,16,51,52) to split a signal on the input into a plurality of different frequency bands for the outputs, wherein for one or more of the subsequent networks, and wherein outputs of some of the networks form frequency band outputs of the filters (see fig.3 and col.3 line 19-col.4 line 56).

Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Orban into the teaching of Baker, so that

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the system provide the signal processor can generally be described as a distributed crossover system for use with bandpass filters containing internal clippers. A unique (series/parallel) crossover configuration with favorable summation of properties is used.

Response to Arguments

11. Applicant's arguments with respect to claims 21-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Scholz (US PAT 4,584,700) is recited to show other related the guitar preamplifier system with controllable distortion.

14. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

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Facsimile responses should be faxed to:

(703) 872-9306

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (571) 272-7499.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
571-272-7501


DUC NGUYEN
PRIMARY EXAMINER